



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,455	10/31/2003	Kim B. Saulsbury	59057US002	2864
32692	7590	10/19/2006	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			ONEILL, KARIE AMBER	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/699,455	SAULSBURY ET AL.
	Examiner	Art Unit
	Karie O'Neill	1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 18 September 2006.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-67 is/are pending in the application.
 4a) Of the above claim(s) 17-67 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-16 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 31 October 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10-31-03, 3-1-04, 3-7-04</u> | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I (claims 1-16) in the reply filed on September 18, 2006, is acknowledged. The traversal is on the ground(s) that separate examination of the claims of Groups I-III would not require substantial duplication of work on the examiner. This is not found persuasive because regardless of search method, invention of different limitations will require different search strategies, and the time to consider the relevancy of collective references would increase proportionally as well.

The requirement is still deemed proper and is therefore made FINAL. Therefore, Claims 17-67 are withdrawn from consideration.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 6, 8-9 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohara (EP 0981175 A2).

With regard to Claim 1, Ohara discloses in Figure 3, a fuel cell current collection system comprising: a fuel cell stack comprising fuel cells stacked in a predetermined stacking direction or unit cells of a cell laminate (1) stacked in a laminating direction; and an end plate assembly disposed at one end of the fuel cell stack, the end plate assembly

comprising; an end plate (5); and a pair of collecting members (8) extending from current collectors (6) in the fuel cell stack and passing through the end plate via the insulating member (7) (paragraph 0032).

With regard to Claim 2, Ohara discloses the collecting member having a substantially longitudinal orientation with respect to the stacking direction, collecting members extending in the laminating direction of the cell laminate (paragraph 0032).

With regard to Claim 6, it can be seen in Figures 1 and 3, the collecting member (8) comprises one or more bolts.

With regard to Claims 8 and 9, Ohara discloses the end plate assembly further comprising a pair of metal current collecting plates (paragraph 0051) configured to electrically couple an active area of the fuel cell stack with the collecting member by (paragraph 0032).

With regard to Claim 13, Ohara discloses a fuel cell current collection system comprising: means for providing a stack of fuel cells stacked in a predetermined stacking direction or unit cells of a cell laminate (1) stacked in a laminating direction by arranging the cell laminates with end plates such that the cell laminates having an identical configuration can be joined sequentially to form a stack (paragraph 0049); and means for collecting current from the fuel cell stack, the means for collecting current including a pair of collecting members (8) extending from current collectors (6) in the fuel cell stack and passing through the end plate via the insulating member (7) (paragraph 0032).

With regard to Claim 14, Ohara discloses the means for collecting current comprises a pair of metal current collecting plates (paragraph 0051) configured to

electrically couple an active area of the fuel cell stack with the collecting member by (paragraph 0032).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohara (EP 0981175 A2), as applied to Claims 1-2, 6, 8-9 and 13-14 above, and in further view of Hato et al. (US 6,770,396 B2).

Ohara discloses the fuel cell current collection system in paragraph 3 above, but does not disclose the end plate assembly comprising the end plate being formed of a non-metallic material, being formed of an electrically non-conductive material and being formed of a thermally insulating material.

Hato et al. disclose each of the pair of end plates being made of electrically insulating resin-dominant material comprising resin as a main ingredient, which may contain filler or reinforcing material such as glass fiber and ceramic powder in case of need (column 4 lines 27-33). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use an end plate made of a non-metallic, electrically non-conductive and thermally insulating material with the fuel cell system of Ohara, because Hato et al. teach the cost and weight of the fuel cell being very much reduced,

and since the resin material is slower in its heat radiation than metal materials, it is superior in utilizing thermal energy.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohara (EP 0981175 A2), as applied to Claims 1-2, 6, 8-9 and 13-14 above, and in further view of Sarkar et al. (US 6,936,367 B2).

Ohara discloses the fuel cell current collection system in paragraph 3 above, but does not disclose wherein the current collector comprises one or more pins.

Sarkar et al. disclose in column 10 lines 12-24, the anode current collector being in the shape of a rod. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use a current collector in the shape of a rod or pin with the fuel cell system of Ohara, because Sarkar et al. teach the rod extending longitudinally from the fuel cell and having a plurality of electrically conductive filaments extending generally transversely from the rod and electrically and mechanically coupled to the internal electrode and being connectable to an external circuit.

7. Claims 10-12 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohara (EP 0981175 A2), as applied to Claims 1-2, 6, 8-9 and 13-14 above, and in further view of Ernst et al. (US 5,945,232).

Ohara discloses the fuel cell current collection system in paragraph 3 above, but does not disclose the end plate assembly comprising a current collecting plate configured to fit within a recess of the end plate, a current collecting plate configured to fit within a

recess formed in a component of the fuel cell stack, and a flow field plate within the component of the fuel cell stack.

With regard to Claims 10 and 16, Ernst et al. disclose in Figure 4, end plates (302, 304) including recesses (306, 308), respectively, for receiving collector plates (310) disposed at each end of the sub-stacks (320). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use end plates with recesses that are configured to hold collector plates with the fuel cell system of Ohara, because Ernst et al. teaches a smaller overall stack size without sacrificing stack voltage and reducing stack costs by minimizing layers in the stack.

With regard to Claims 11 and 15, Ernst et al. disclose in Figure 4, components of a fuel cell stack or end plates (302, 304) including recesses (306, 308), respectively, for receiving collector plates (310) disposed at each end of the sub-stacks (320). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use end plates with recesses that are configured to hold collector plates with the fuel cell system of Ohara, because Ernst et al. teaches a smaller overall stack size without sacrificing stack voltage and reducing stack costs by minimizing layers in the stack.

With regard to Claim 12, Ohara discloses wherein a component of the fuel cell stack comprises a flow field plate of the fuel cell stack, the component being an end plate of the fuel cell stack in which the flow paths of the gaseous fuel, the oxidant gas and the cooling water which are fed to the cell laminate are arranged (paragraph 0049).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill whose telephone number is (571) 272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karie O'Neill
Examiner
Art Unit 1745



DAH-WEI YUAN
PRIMARY EXAMINER

KAO